



تحلیل داده و هوش تجاری

جلسه دهم - شاخص ارزیابی عملکرد | استارتاپ

DATA ANALYSIS & BI

KPI, OKR | STARTUPS

Reza Shokrzad



Today

- What is KPI
- KPI in diverse domains
- What is OKR
- OKR case
- Startups

What is KPI

- **Definition of KPIs:**

- Quantitative metrics used to gauge performance and progress towards specific objectives.
- Vital tools in business strategy, operations, and decision-making.

- **Purpose of KPIs:**

- Provide actionable insights and benchmarks for success.
- Facilitate data-driven decision-making and strategic planning.

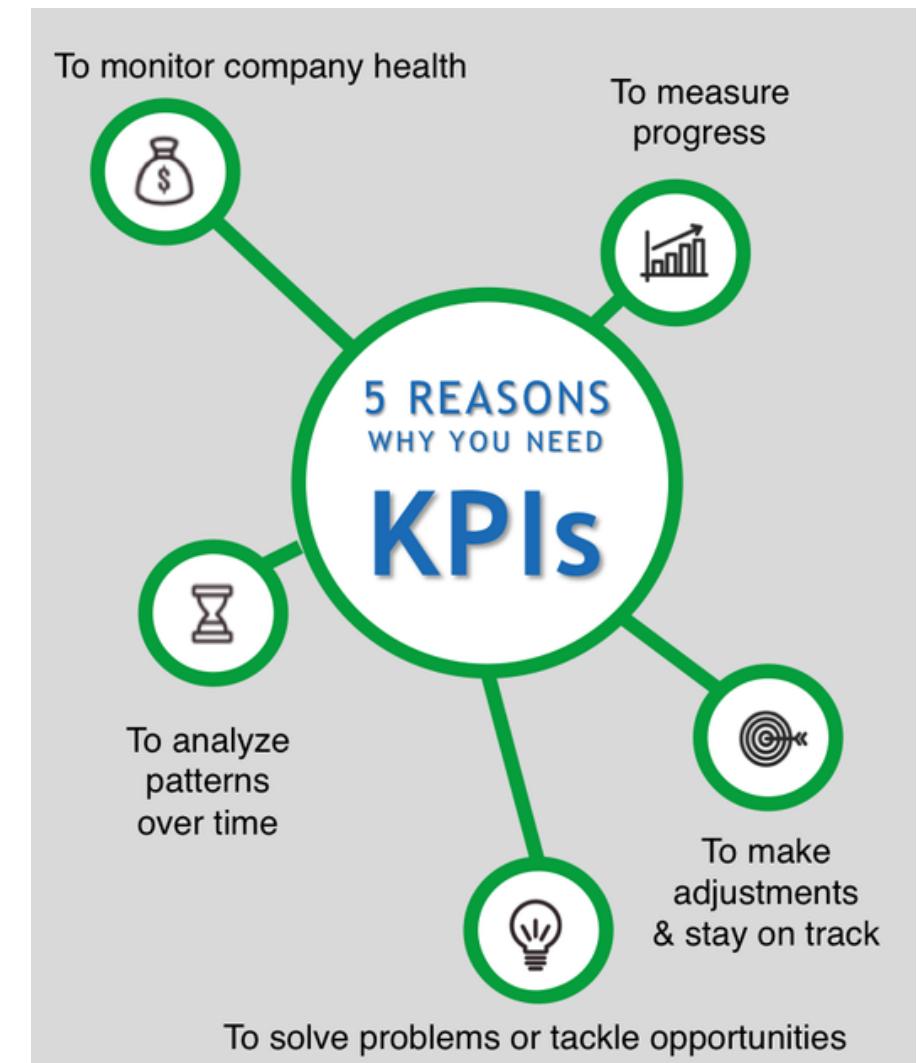
What is KPI

- **Characteristics of Effective KPIs:**

- Relevant: Aligned with specific business goals and objectives.
- Measurable: Quantifiable and data-driven.
- Actionable: Clear indicators for decision-making.
- Time-Bound: Related to a specific timeframe for achievement.

- **Benefits of KPIs:**

- Enhances performance monitoring and management.
- Identifies areas needing improvement and growth opportunities.
- Boosts employee motivation and aligns efforts with business objectives.



KPI in Marketing

- 1.Return on Investment (ROI)
- 2.Customer Acquisition Cost (CAC)
- 3.Conversion Rate
- 4.Customer Lifetime Value (CLV)
- 5.Brand Awareness
- 6.Engagement Rate
- 7.Lead Generation Volume
- 8.Cost Per Lead (CPL)
- 9.Traffic-to-Lead Ratio (New Visitor Conversion Rate)
- 10.Churn Rate

Return Of Investment (ROI)

ROI
(Return On Investment)



Return



Investment

$$= \frac{\text{Return}}{\text{Investment}}$$



Investment

CAC vs CPA

CAC

Customer Acquisition Cost

=

total marketing spend

of new customers

CPA

Cost Per Acquisition

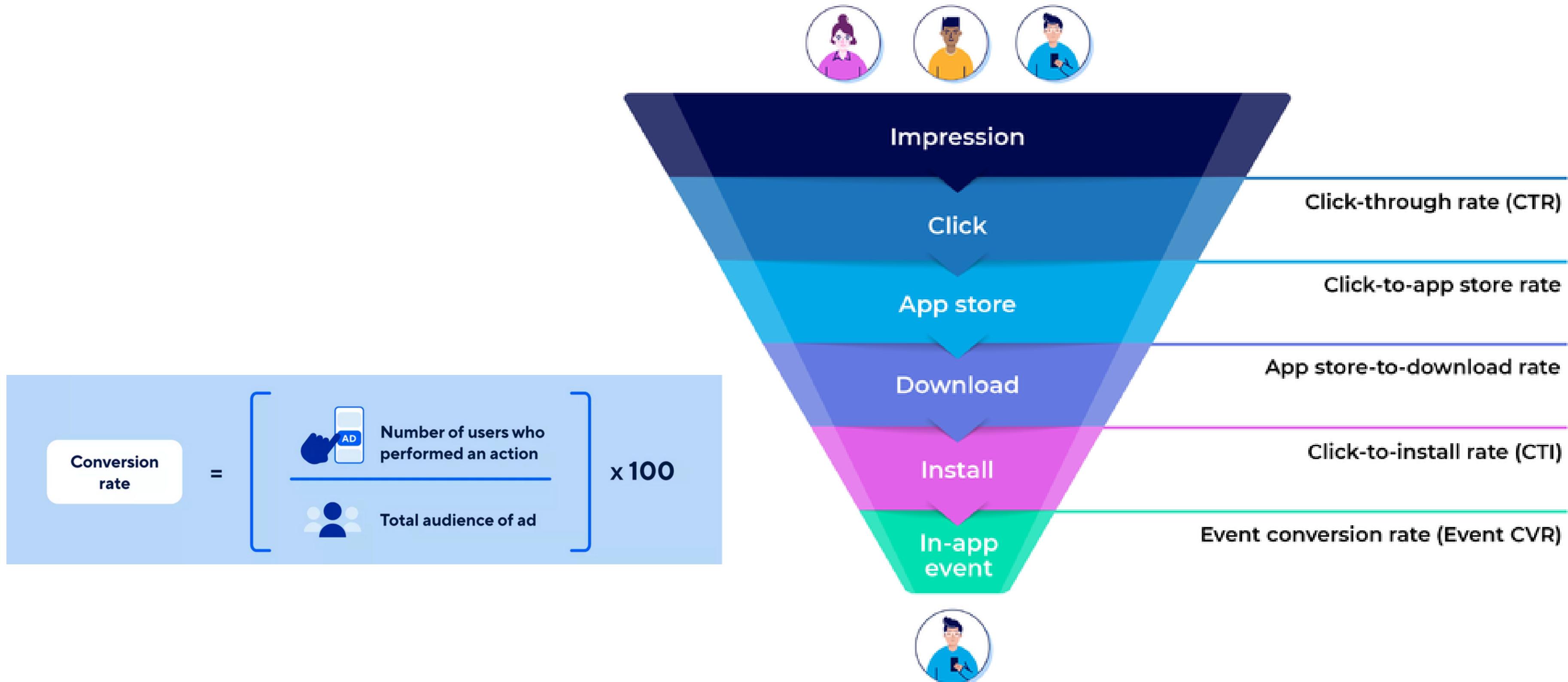
=

total campaign spend

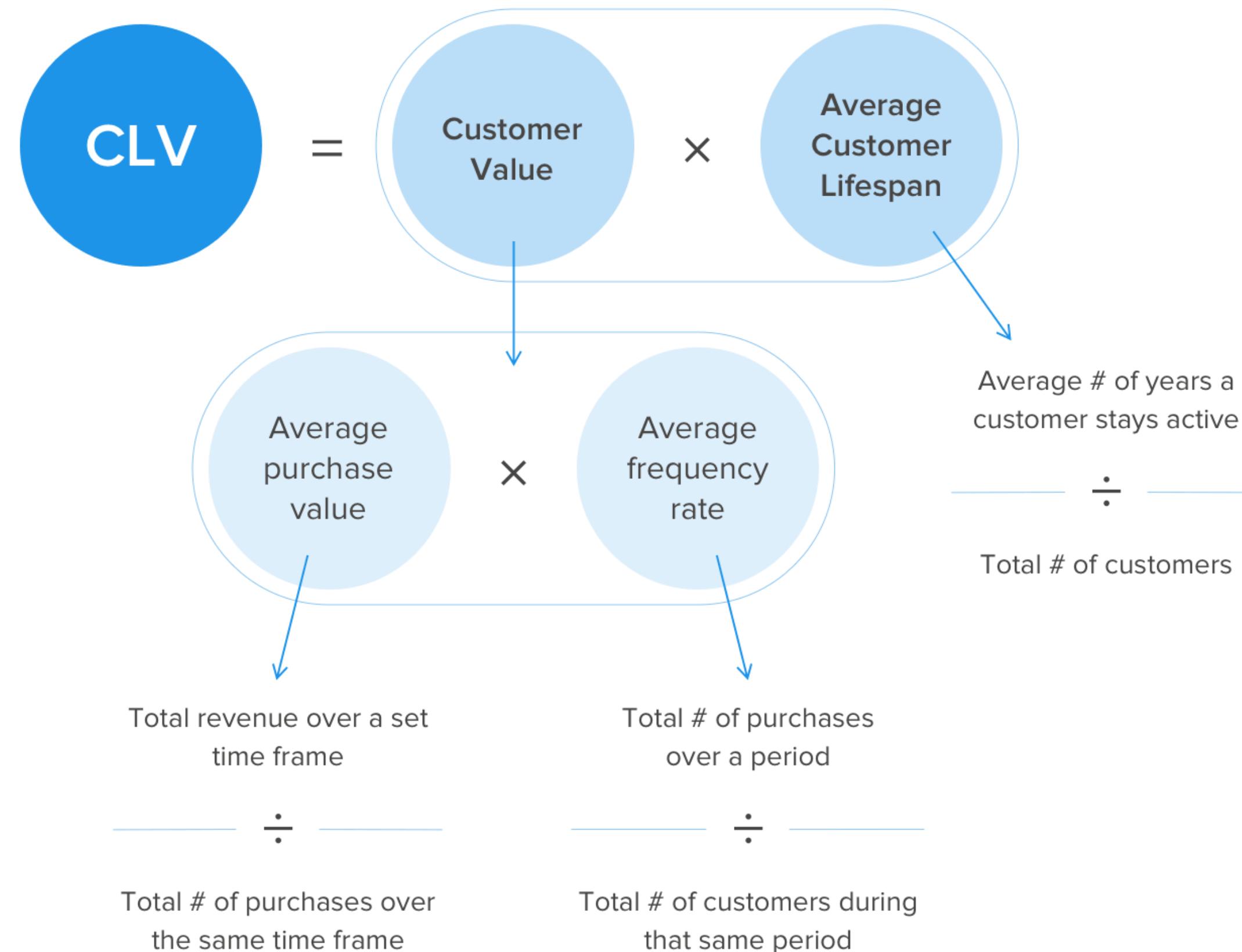
of campaign conversions

Where conversions = content downloads,
consultations, email signups, etc.)

Conversion Rate



Customer Lifetime Value (CLV)



Brand Awareness

Unaided Awareness =

Number of respondents
listing a brand

Number of total
respondents included in
survey

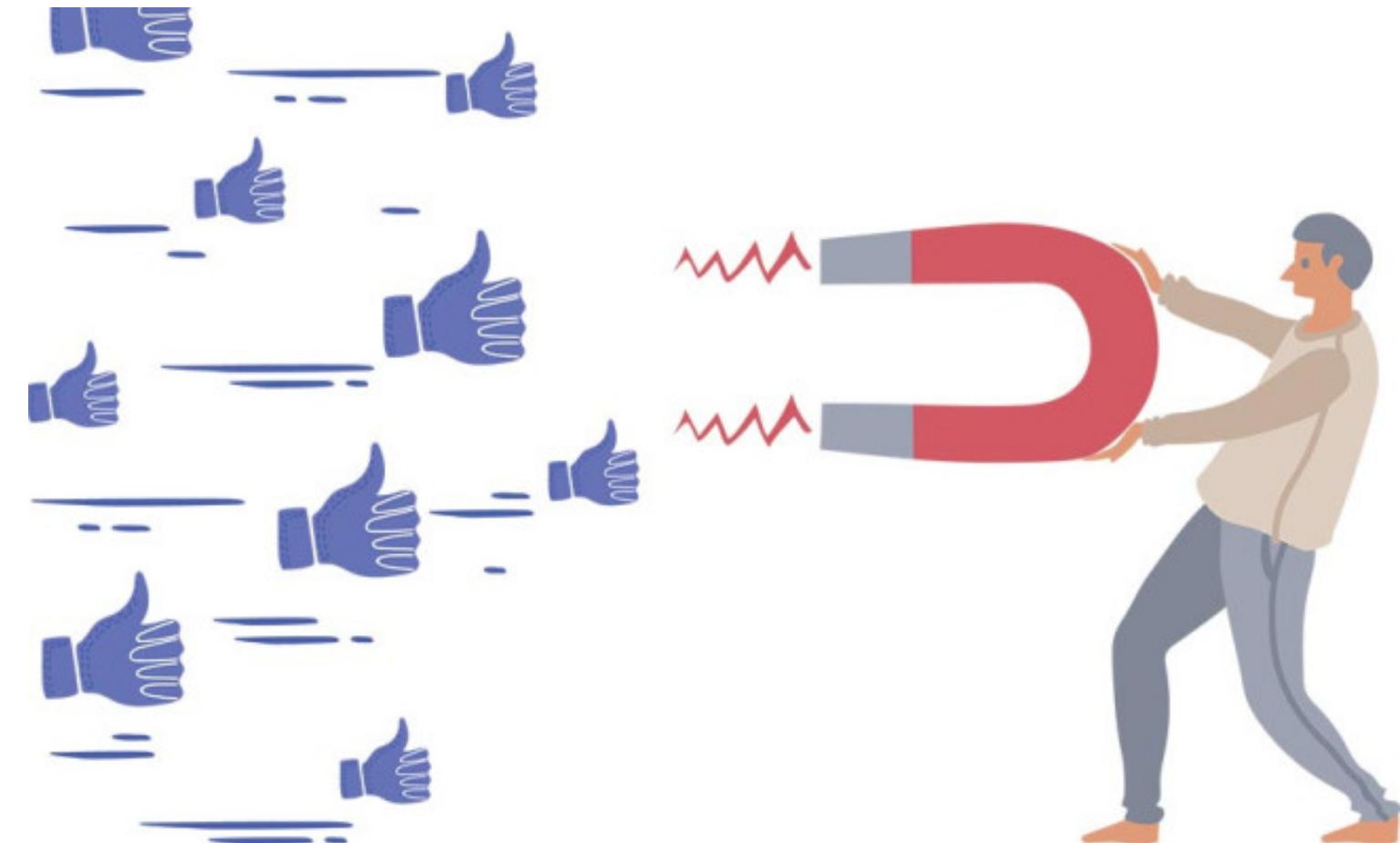
Aided Awareness =

Number of respondents indicating
they've heard of a brand

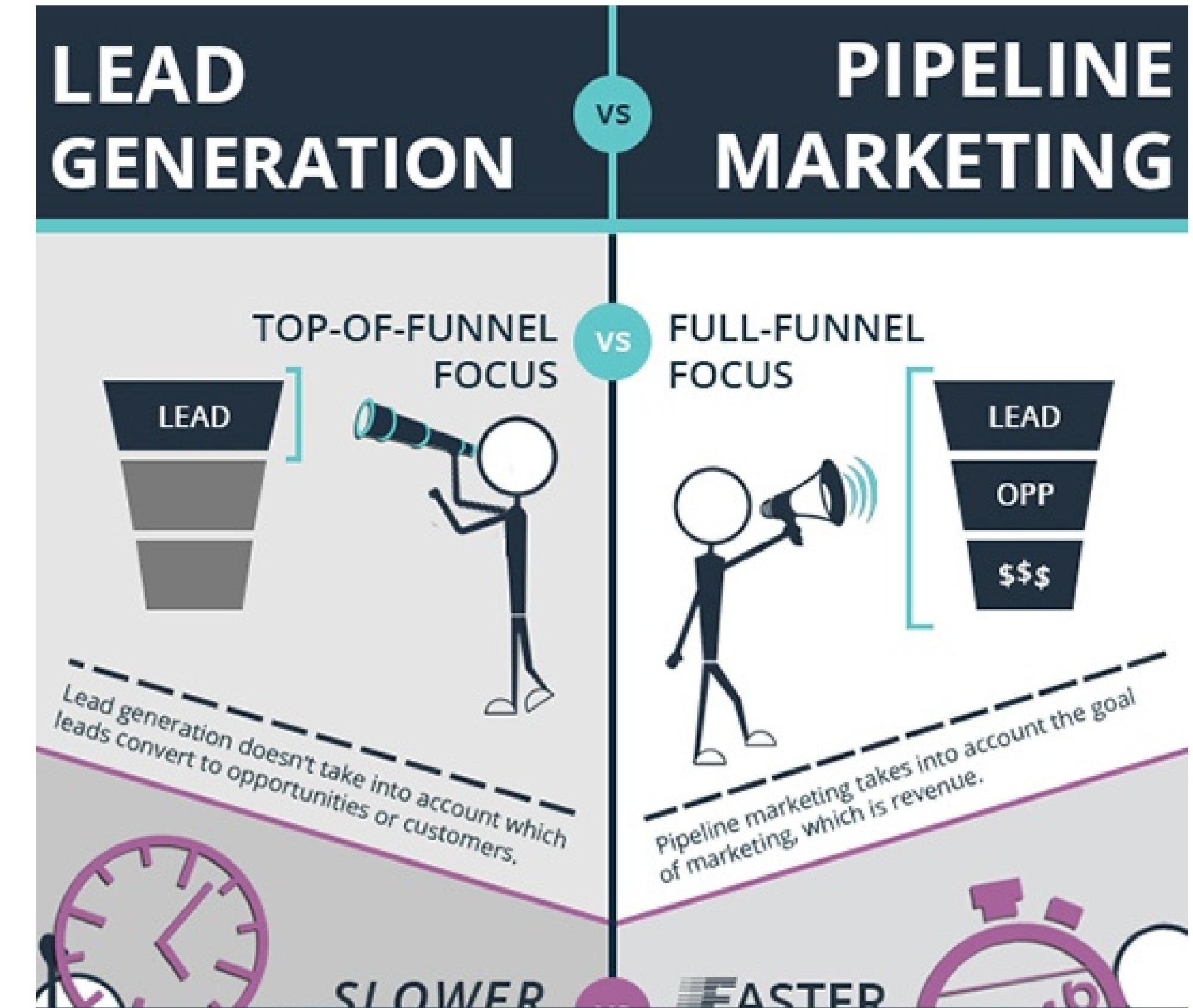
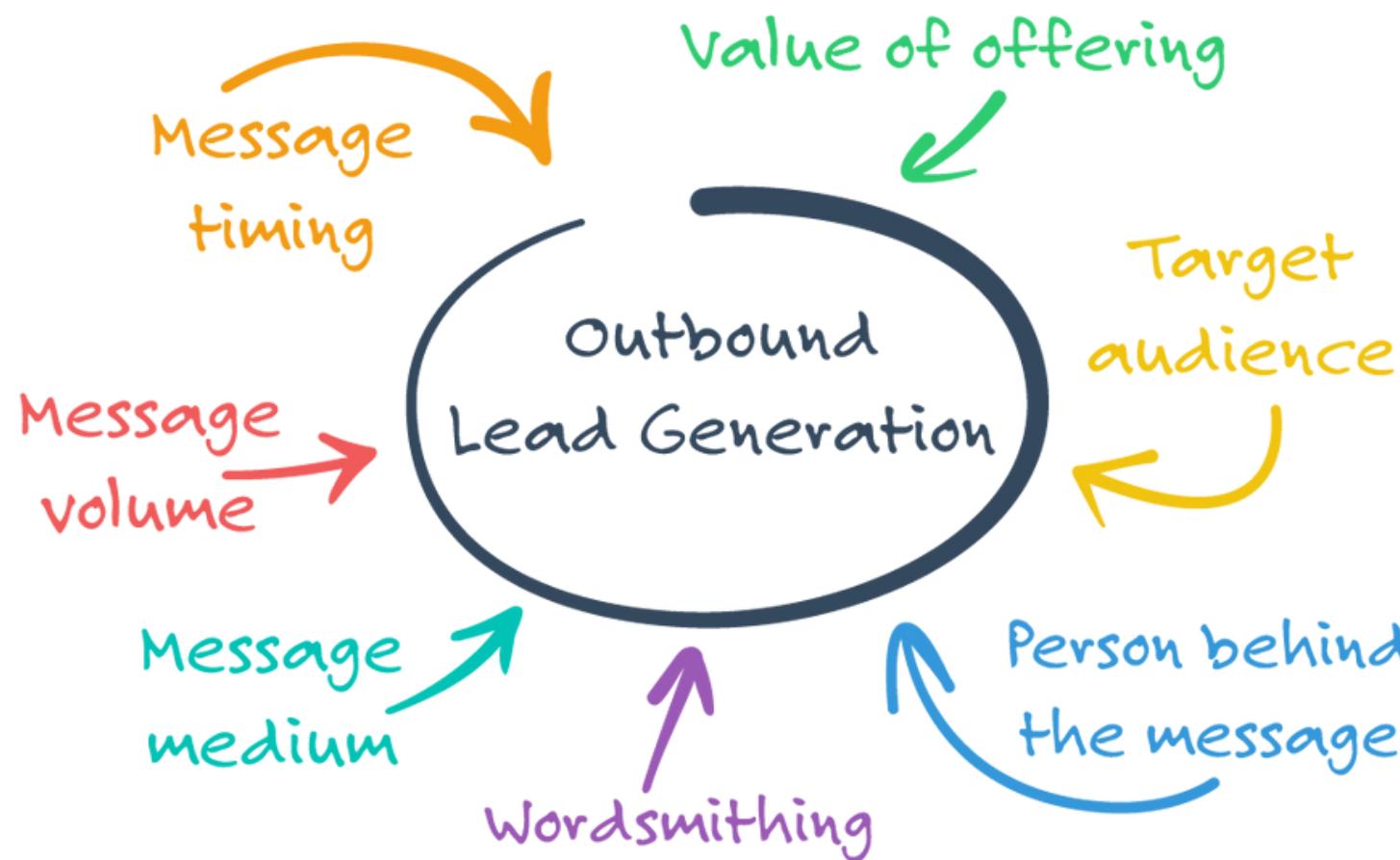
Number of total respondents
included in survey

Engagement Rate

$$ER = \frac{\text{Total Engagement (Likes + Comments + Shares)}}{\text{Total Impressions}} * 100$$

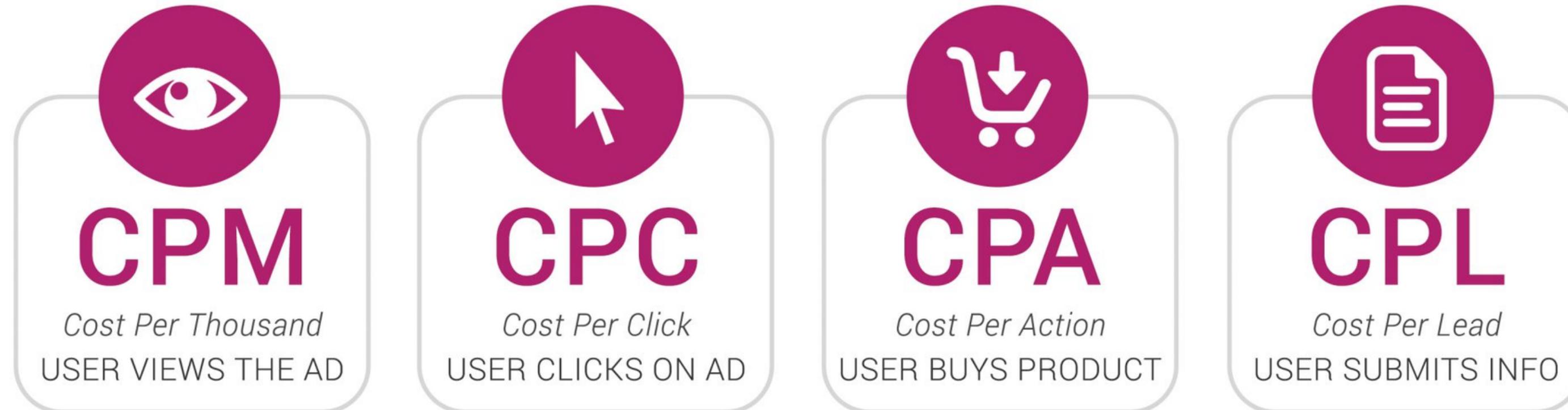


Lead Generation Volume



Cost Per Lead (CPL)

$$\text{Cost Per Lead (CPL)} = \frac{\text{Marketing Spend}}{\text{Number of New Leads}}$$



Churn Rate

$$\frac{\text{Customers at the beginning of the time period} - \text{Customers at the end of the time period}}{\text{Customers at the beginning of the time period}} \times 100$$

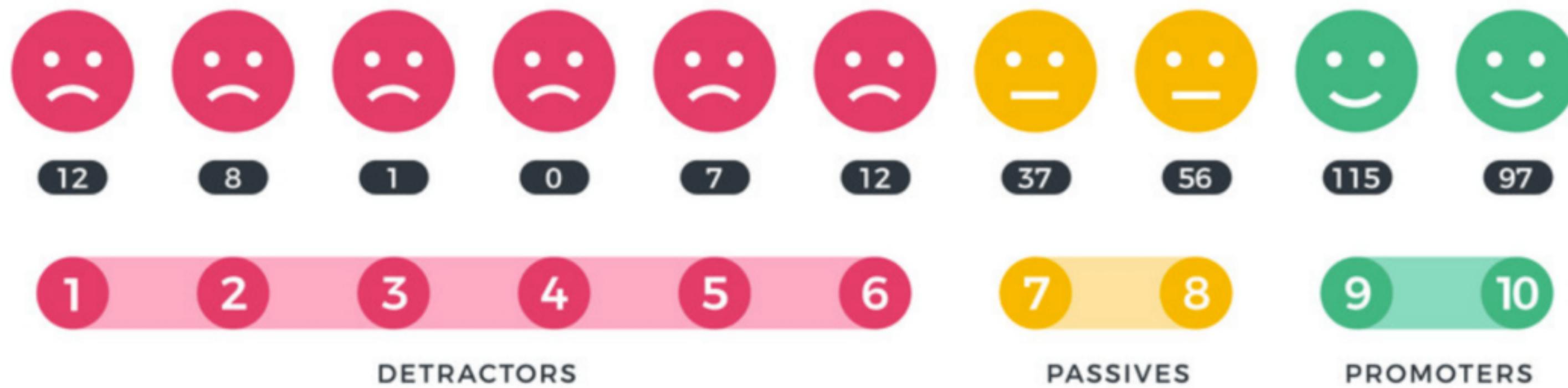
KPI in Data Analytics

1. Data Quality
2. Data Completeness
3. Data Processing Time
4. Analysis Accuracy
5. Insight Generation Speed
6. Report Generation Time
7. User Satisfaction
8. Data Utilization
9. Query Response Time
10. Cost Efficiency

KPI for SaaS Productions

1. Monthly Recurring Revenue (MRR)
2. Customer Lifetime Value (CLV)
3. Customer Acquisition Cost (CAC)
4. Churn Rate
5. Customer Retention Cost (CRC)
6. Average Revenue Per User (ARPU)
7. Lead Conversion Rate
8. Trial-to-Paid Conversion Rate
9. Net Promoter Score (NPS)
10. Product Engagement Score (PES)

Net Promoter Score (NPS)



NPS = %PROMOTERS - %DETRACTORS



KPI in Product

1. Customer Satisfaction Score (CSAT)
2. Net Promoter Score (NPS)
3. Monthly Recurring Revenue (MRR)
4. Churn Rate
5. Customer Lifetime Value (CLV)
6. Conversion Rate
7. Retention Rate
8. Time to Market
9. Product Return Rate
10. Cost of Goods Sold (COGS)

KPI in CRM

1. Customer Retention Rate
2. Customer Churn Rate
3. Customer Satisfaction Score (CSAT)
4. Net Promoter Score (NPS)
5. Customer Lifetime Value (CLV)
6. Lead Conversion Rate
7. Sales Growth
8. Average Purchase Value
9. Customer Support Tickets
10. Customer Engagement Level

KPI in Human Recourse

1. Employee Turnover Rate
2. Cost Per Hire
3. Employee Engagement Level
4. Absenteeism Rate
5. Time to Fill
6. Training and Development Effectiveness
7. Employee Satisfaction Index
8. Retention Rate
9. Diversity and Inclusion Metrics
10. Performance Improvement After Training

KPI in Corporate Finance

1. Earnings Before Interest and Taxes (EBIT)
2. Net Profit Margin
3. Return on Equity (ROE)
4. Return on Assets (ROA)
5. Debt-to-Equity Ratio
6. Current Ratio
7. Operating Cash Flow
8. Working Capital
9. Interest Coverage Ratio
10. Inventory Turnover

Financial Statements

1. **Balance Sheet:** Shows the company's assets, liabilities, and shareholders' equity at a specific point in time.
2. **Profit and Loss Statement (P&L):** Also known as the income statement, it reports the company's revenues, expenses, and profits over a period of time.
3. **Cash Flow Statement:** Provides an overview of the cash inflows and outflows from operating, investing, and financing activities over a period.
4. **Statement of Shareholders' Equity:** Reflects changes in the value of shareholders' equity in the company during the reporting period.
5. **Notes to the Financial Statements:** Accompany the financial statements to provide additional detail and context regarding the company's financial condition and results.
6. **Statement of Comprehensive Income:** Includes all changes in equity not resulting from interactions with shareholders, such as unrealized gains and losses on investments.

P&L example

شرکت نمونه	
صورت سود و زیان	
برای سال مالی منتهی به ۳۰ اسفندماه ۱۳۹۹	
مبالغ به ریال	شرح
۷۷۴,۰۳۶,۷۴۵	فروش خالص
-۴۰۶,۳۰۲,۳۱۸	بهای تمام شده کالای فروش رفته
۳۶۷,۷۳۴,۴۲۷	سود (زیان) ناخالص
-۱۸,۶۷۹,۱۳۳	هزینه‌های فروش، اداری و عمومی
۶,۵۰۷,۳۹۹	خالص سایر درآمدها و هزینه‌های عملیاتی
۳۵۵,۵۶۲,۶۹۳	سود (زیان) عملیاتی
-۳۰,۲۴۳,۳۰۸	هزینه‌های مالی
۸۹,۸۵۸,۶۴۳	خالص سایر درآمدها و هزینه‌های غیرعملیاتی
۴۱۵,۱۷۸,۰۲۸	سود (زیان) عملیات قبل از مالیات
-۱۰۳,۷۹۴,۵۰۷	مالیات بر درآمد
۳۱۱,۳۸۳,۵۲۱	سود (زیان) خالص

P&L example

P&L (€)	Feb-2020	Feb-2021	Feb-2022
Revenues	121,033	130,815	139,079
Cost of goods sold	0	0	0
Gross profit	121,033	130,815	139,079
Capitalized expenses	0	0	0
SG&A	(116,572)	(117,017)	(117,423)
Subsidies	0	0	0
Lease rentals	0	0	0
Other operating income	0	0	0
Other operating expenses	0	0	0
EBITDA	4,461	13,798	21,656
D&A	(2,025)	(2,025)	(2,158)
Operating income	2,436	11,773	19,497
Financial income	0	0	0
Financial expenses	(1,119)	(822)	(511)
Profit (loss) on disposal	0	0	0
Exceptional income	0	0	0
Exceptional expenses	0	0	0
Profit before tax	1,317	10,951	18,986
Corporation tax	0	0	(2,326)
Net income	1,317	10,951	16,661

Balance Sheet example

سیمان تهران(شرکت سهامی عام)

ترازنامه

در تاریخ ۲۹ اسفند ۱۳۹۳

دارایی ها	یادداشت ۱۳۹۳/۱۲/۲۹	میلیون ریال	یادداشت ۱۳۹۲/۱۲/۲۹	میلیون ریال	بدهیها و حقوق صاحبان سهام	یادداشت ۱۳۹۲/۱۲/۲۹	میلیون ریال	یادداشت ۱۳۹۳/۱۲/۲۹	میلیون ریال
بدهیهای جاری:									
درازنهای جاری:									
موجودی نقد	۳	۱۴۷,۲۳۸	۲۱۱,۱۸۰	۲۱۱,۱۸۰	پرداختی های تجاری و غیرتجاری	۱۳	۸۲۳,۲۲۲	۵۸۱,۳۹۹	۵۸۱,۳۹۹
سرمایه گذاریهای کوتاه مدت	۴	۹۷,۸۸۴	۸۲,۸۸۴	۸۲,۸۸۴	مالیات پرداختی	۱۶	۲۱,۹۵۳	۱۶۶,۶۶۶	۱۶۶,۶۶۶
دریافتی های تجاری و غیرتجاری	۵	۱,۰۲۰,۷۸۰	۱,۰۶۵,۶۱۹	۱,۰۶۵,۶۱۹	سود سهام پرداختی	۱۵	۸۴۰,۸۰۶	۳۰۱,۹۰۹	۳۰۱,۹۰۹
موجودی مواد و کالا	۶	۱,۰۲۹,۹۵۸	۶۶۶,۹۰۰	۶۶۶,۹۰۰	تسهیلات مالی	۱۶	۱,۸۰۷,۶۱۸	۱,۴۷۵,۸۵۳	۱,۴۷۵,۸۵۳
سفارشات و پیش پرداختها	۷	۶۹,۷۲۸	۷۵,۳۴۱	۷۵,۳۴۱	پیش دریافتها	۱۷	۳۱,۴۱۰	۸۱,۱۸۱	۸۱,۱۸۱
جمع داراییهای جاری		۲,۳۶۵,۵۸۸	۲,۱۰۱,۹۲۴	۲,۱۰۱,۹۲۴	جمع بدھیهای جاری		۳,۵۲۵,۰۰۹	۲,۶۰۷,۰۰۸	۲,۶۰۷,۰۰۸
بدھیهای غیرجاری:									
درازنهای غیرجاری:									
دریافتی های بلند مدت	۸	۱۹,۶۵۱	۱۵,۳۸۲	۱۵,۳۸۲	پرداختی های بلند مدت	۱۸	۵۱۴,۰۴۸	۶۷۳,۴۷۷	۶۷۳,۴۷۷
سرمایه گذاریهای بلند مدت	۹	۳,۰۹۸,۶۴۹	۳,۰۹۸,۶۴۹	۳,۰۹۸,۶۴۹	تسهیلات مالی دریافتی بلند مدت	۱۶	۵۸۲,۰۲۰	۱۸۶,۰۴۲	۱۸۶,۰۴۲
دارایی های نامشهود	۱۰	۱۹,۶۱۱	۱۸,۸۰۴	۱۸,۸۰۴	ذخیره مزانی بایان خدمت کارکنان	۱۹	۱۲۴,۵۱۱	۱۰۳,۹۶۷	۱۰۳,۹۶۷
دارایی های ثابت مشهود	۱۱	۳,۰۶۱,۷۱۸	۲,۳۶۱,۳۲۴	۲,۳۶۱,۳۲۴	جمع بدھیهای غیرجاری		۱,۲۲۰,۵۶۹	۹۶۳,۴۸۶	۹۶۳,۴۸۶
جمع داراییهای غیرجاری		۶,۱۹۹,۶۲۹	۵,۴۹۴,۱۰۹	۵,۴۹۴,۱۰۹	جمع بدھیها		۴,۷۵۵,۵۷۸	۳,۵۷۰,۴۹۴	۳,۵۷۰,۴۹۴
حقوق صاحبان سهام:									
سرمایه									
علی الحساب افزایش سرمایه									
اندوخته قانونی									
سود و زیان ایناشته									
جمع حقوق صاحبان سهام									
جمع بدھیها و حقوق صاحبان سهام									
جمع دارایها									
یادداشتها توضیح همراه جزو لاین فک صورتیهای مالی است.									

سازمان حسابرسی

نمونه ترازنامه یک شرکت تولیدی

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Balance Sheet example

	September 26, 2020	September 28, 2019
ASSETS:		
Current assets:		
Cash and cash equivalents	\$ 38,016	\$ 48,844
Marketable securities	52,927	51,713
Accounts receivable, net	16,120	22,926
Inventories	4,061	4,106
Vendor non-trade receivables	21,325	22,878
Other current assets	11,264	12,352
Total current assets	143,713	162,819
Non-current assets:		
Marketable securities	100,887	105,341
Property, plant and equipment, net	36,766	37,378
Other non-current assets	42,522	32,978
Total non-current assets	180,175	175,697
Total assets	\$ 323,888	\$ 338,516
LIABILITIES AND SHAREHOLDERS' EQUITY:		
Current liabilities:		
Accounts payable	\$ 42,296	\$ 46,236
Other current liabilities	42,684	37,720
Deferred revenue	6,643	5,522
Commercial paper	4,996	5,980
Term debt	8,773	10,260
Total current liabilities	105,392	105,718
Non-current liabilities:		
Term debt	98,667	91,807
Other non-current liabilities	54,490	50,503
Total non-current liabilities	153,157	142,310
Total liabilities	258,549	248,028
Commitments and contingencies		
Shareholders' equity:		
Common stock and additional paid-in capital, \$0.00001 par value:		
50,400,000 shares authorized; 16,976,763 and 17,772,945 shares issued and outstanding, respectively	50,779	45,174
Retained earnings	14,966	45,898
Accumulated other comprehensive income/(loss)	(406)	(584)
Total shareholders' equity	65,339	90,488
Total liabilities and shareholders' equity	\$ 323,888	\$ 338,516

See accompanying Notes to Consolidated Financial Statements.
Apple Inc. | 2020 Form 10-K

KPI in Financial Markets

- 1.Return on Investment (ROI)
- 2.Alpha
- 3.Beta
- 4.Sharpe Ratio
- 5.Volatility
- 6.Price/Earnings Ratio (P/E Ratio)
- 7.Earnings Per Share (EPS)
- 8.Market Capitalization
- 9.Dividend Yield
- 10.Trading Volume

KPI in Manufacturing

1. Overall Equipment Effectiveness (OEE)
2. Cycle Time
3. Yield
4. Downtime
5. Inventory Turnover
6. Capacity Utilization
7. Throughput
8. Scrap Rate
9. Return on Assets (ROA)
10. Customer Return Rate

KPI in Machine learning

1. Model Accuracy
2. Precision and Recall
3. F1 Score
4. Area Under the ROC Curve (AUC-ROC)
5. Mean Squared Error (MSE)/Root Mean Squared Error (RMSE)
6. Mean Absolute Error (MAE)
7. Training Time
8. Model Complexity
9. Data Throughput
10. Generalization Error

What is OKR

- **Definition of OKRs:**

- A framework for defining and tracking objectives and their outcomes.
- Combines ambitious, qualitative objectives with measurable key results.

- **Purpose of OKRs:**

- Promotes alignment and engagement around measurable goals.
- Encourages stretching beyond comfort zones to achieve meaningful results.

What is OKR

- **Components of OKRs:**

- Objectives: Clear, inspirational, and action-oriented goals.
- Key Results: Specific, time-bound, and quantifiable metrics to measure success.

- **Benefits of OKRs:**

- Improves focus and prioritization within teams and organizations.
- Facilitates transparency and accountability.
- Drives organizational and individual growth.

Google Chrome - A Case Study in OKRs

- **Objective:**
 - Develop the next generation client platform for web and applications.
- **Key Results:**
 - a. Reach 20 million active users daily by the end of 2008.
 - b. Reach 50 million active users daily by the end of 2009.
 - c. Reach 100 million active users daily by the end of 2010.

Startups

- Innovative ventures aiming to meet a marketplace need by developing a viable business model around a product, service, process, or platform.
- Startups focus on innovation and scalability, whereas traditional businesses often emphasize steady growth and profitability.
- Entrepreneurial Spirit: Driven by innovation, risk-taking, and a vision for change.
- Revenue Models: freemium, subscription, and direct sales, differing from conventional fixed-income streams.

Startups vs Traditional

- **Culture of Startups:** flexibility, adaptability, and a flat hierarchy, contrasting with formal structures in traditional businesses.
- **Disruption and Innovation:** Startups often disrupt existing markets with innovative solutions, unlike traditional businesses that may focus on incremental improvements.
- **Risk and Uncertainty:** Higher risk and uncertainty compared to established business models, with potential for higher returns.
- **Lean Approach:** Emphasis on minimal viable products and lean methodologies, unlike the resource-heavy approaches in traditional models.

Startup Main Features

- **Consistent**
- **Repetative**
- **Scalable**



Case Study



Uber



Snapp!

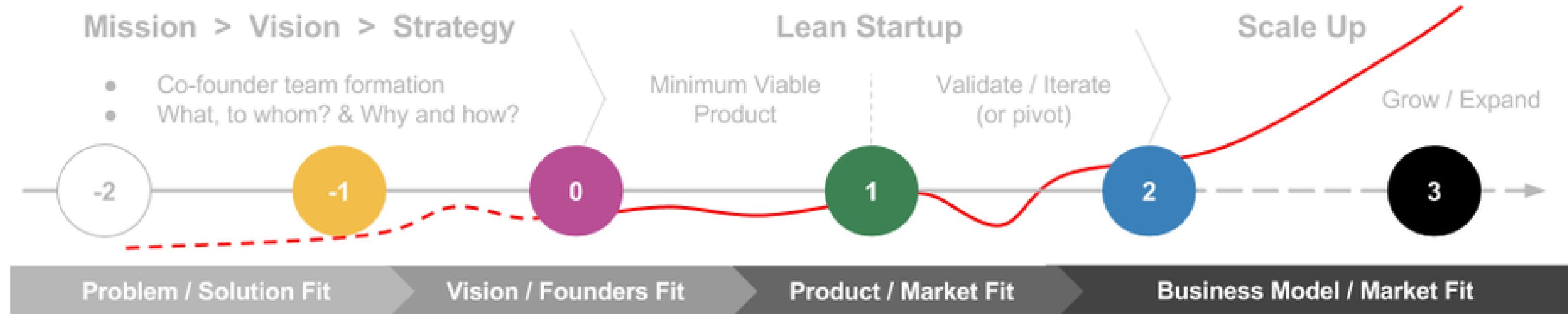


Business Model Canvas

Early Strategic Analysis of Uber

PROBLEM <small>List your top 1-3 problems.</small> In certain situations, it is sometimes very difficult to find a taxi The price of a trip is not known in advance and, sometimes, is not transparent Paying a taxi driver often requires having some cash	SOLUTION <small>Outline a possible solution for each problem.</small> Intermediary between drivers and customers Fixed fee known when the trip is booked Payment processed via credit card	UNIQUE VALUE PROPOSITION <small>Single, clear, compelling message that states why you are different and worth paying attention.</small> Offering an individual transport solution in any big cities worldwide	UNFAIR ADVANTAGE <small>Something that cannot easily be bought or copied.</small> A 3-billion driver network Available in 65 countries and over 600 cities worldwide	CUSTOMER SEGMENTS <small>List your target customers and users.</small> Urban millennials Local business people transportation Business travelers Foreign tourists
EXISTING ALTERNATIVES <small>List how these problems are solved today.</small> Taxi Car sharing services	KEY METRICS <small>List the key numbers that tell you how your business is doing.</small> Number of trips Number of users Average price of a trip Average revenue of a driver	HIGH-LEVEL CONCEPT <small>List your X for Y analogy e.g. YouTube = Flickr for videos.</small> "A taxi, anywhere, everywhere"	CHANNELS <small>List your path to customers (inbound or outbound).</small> Mobile app Promo codes Mailing	EARLY ADOPTERS <small>List the characteristics of your ideal customers.</small> Urban millennials Technophile
COST STRUCTURE <small>List your fixed and variable costs.</small> Development and hosting costs of the platform Acquisition and customer loyalty costs Selection and animation of the network of drivers			REVENUE STREAMS <small>List your sources of revenue.</small> A commission rate received on the total price of a trip Trip sharing fees (€0,20 per shared trip)	

startup development phase



Ideation	Concepting	Commitment	Validation	Scaling	Establishing
Entrepreneurial ambition and/or potential scalable product or service idea for a big enough target market. Initial business idea on why and how it would create value. One person or a vague team; no confirmed commitment or no right balance of skills in the team structure yet.	Defining mission and vision with initial strategy and key milestones defined for at least next 3 years on how to get there, > 3, 6, 12, 24, 36 months. Two or three entrepreneurial core co-founders with complementary skills and balanced ownership plan. Maybe have extended team members for additional roles & ownership.	Committed and balanced co-founding team with shared vision and attitude. Able to develop the product or service (Minimum Viable Product) without dependency of uncommitted external resources, or already have initial product or service in place. Shareholder agreement signed between co-founders, including milestones, committed time and money use, for minimum 3 years with vesting terms.	Iterating, validating assumptions until have validated solution to demonstrate initial user growth and/or revenue. Key Performance Indicators (KPI's) identified. Can start to attract additional investment based resources (money or sweat equity) for equity, revenue share or future revenue.	Focus on growth, showing KPI's based measurable, growth in user, customer revenue growth and/or market traction in a big or fast growing target market. Can and want to grow fast. May, will or have attracted significant funding or would be able to do so if wanted. Hiring, improving in quality and implementing processes	Achieved great growth, that can be expected to continue. Easily attracts financial and people resources. Depending on vision, mission and commitments, will continue to grow and often tries to culturally continue "like a startup". Founders and/or investors make exit(s) or continue with the company.

Startups Keywords

- **Innovating:** Creating novel solutions to meet market needs or disrupt existing markets.
- **Scaling:** Expanding the business rapidly and effectively to meet growing demand.
- **Bootstrapping:** Funding the startup primarily through personal finances and revenue.
- **Pivoting:** Making significant changes to the business model or product in response to market feedback.
- **Networking:** Building relationships with potential investors, partners, and mentors.
- **Crowdfunding:** Raising small amounts of capital from a large number of people, typically via the Internet.
- **Accelerating:** Participating in programs that offer mentorship, resources, and support to speed up growth.

Startups Keywords

- **Developing MVP (Minimum Viable Product):** Creating a basic version of a product to test market viability with minimal resources.
- **Seeking Funding:** Actively pursuing financial support from investors (Venture Capital (VC)), loans, or crowdfunding.
- **Building Partnerships:** Forming strategic alliances with other businesses or individuals to enhance growth and market reach.
- **Analyzing Data:** Systematically examining market and operational data to inform business decisions.
- **Hiring Talent:** Recruiting skilled professionals to build a strong team capable of driving startup success.
- **Prototyping:** Constructing an early sample or model of a product to test and refine concepts.
- **Branding:** Developing a unique identity and message for the business to stand out in the market.
- **Idea Generation:** Brainstorming and validating unique business ideas.
- **Market Research:** Analyzing target market and competition to refine the concept.

Startups Keywords

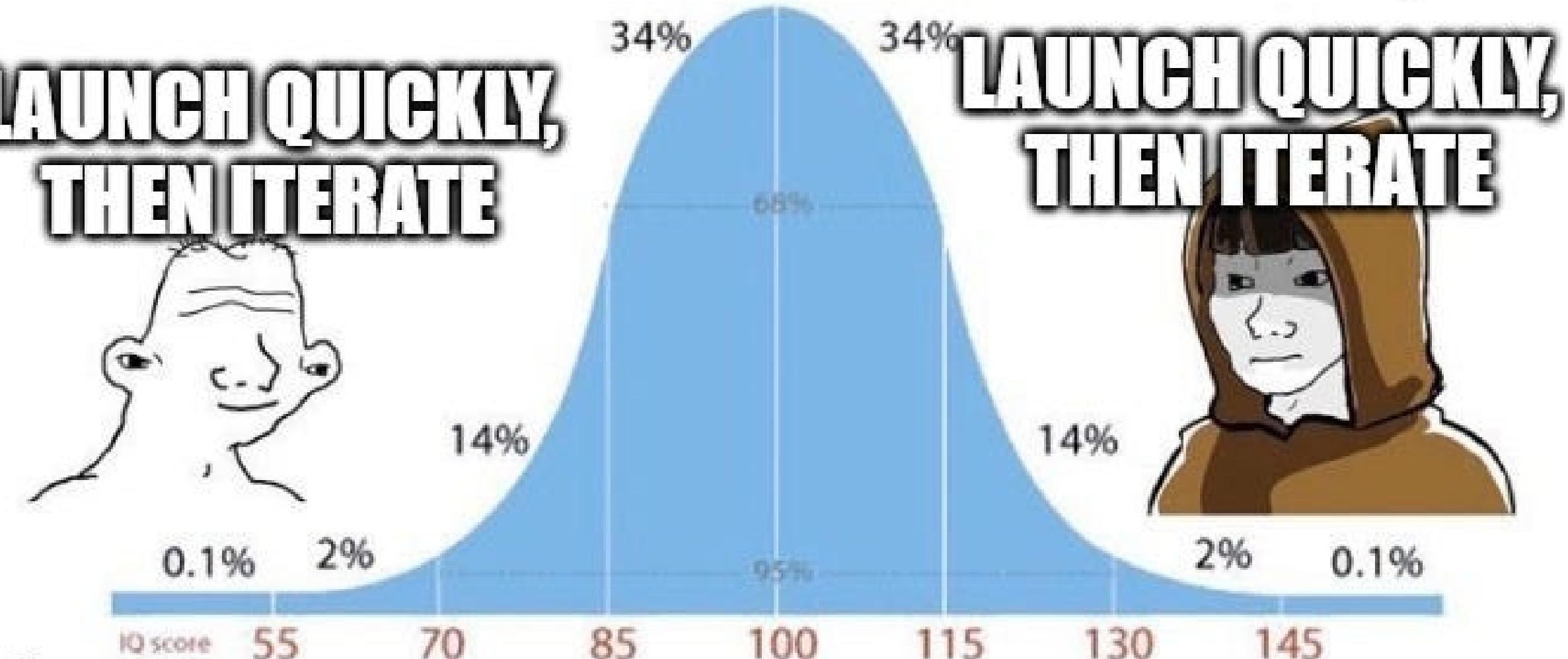
- **Developing MVP:** Creating a Minimum Viable Product to test the market.
- **Business Planning:** Drafting a detailed plan covering strategy, operations, and finances.
- **Facilitator/Accelerator/Incubator:** valuable resources, mentorship, and sometimes funding options for startups.
- **Securing Funding:** Raising capital through investors, loans, or crowdfunding.
- **Building a Team:** Recruiting skilled individuals who align with the startup's vision.
- **Launching:** Introducing the product or service to the market.
- **Marketing and Sales:** Implementing strategies to attract and retain customers.
- **Scaling:** Expanding the business based on demand and market feedback.
- **Continuous Improvement:** Iterating the product and business model based on ongoing learning and feedback.
- **Pitch Deck:** The pitch deck is a brief, visually appealing presentation aimed at capturing investors' interest with key business aspects,
- **Business Plan:** is a detailed document outlining the company's comprehensive strategy, operational plans, and financial forecasts, serving as an operational guide.

Minimum Viable Product (MVP)

LAUNCHING STARTUPS



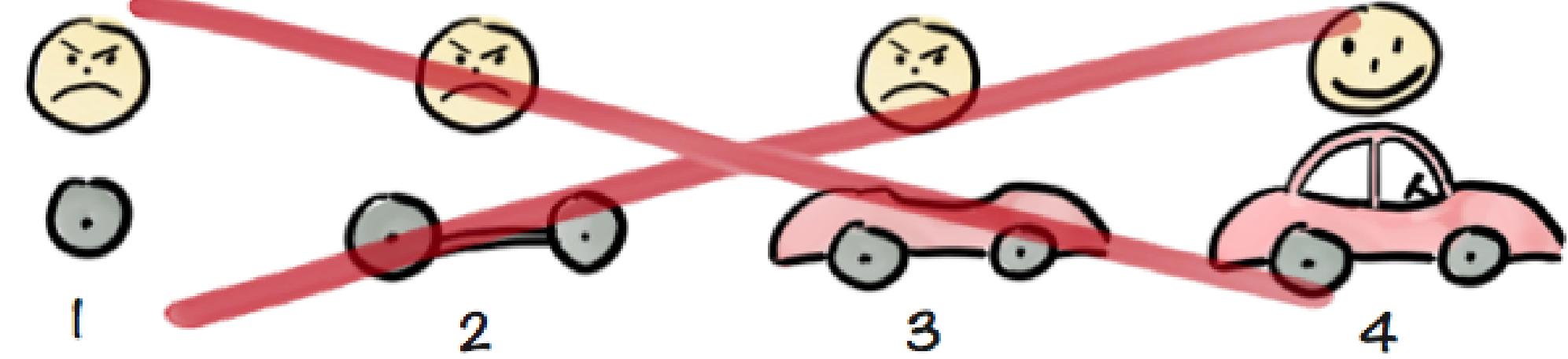
**LAUNCH QUICKLY,
THEN ITERATE**



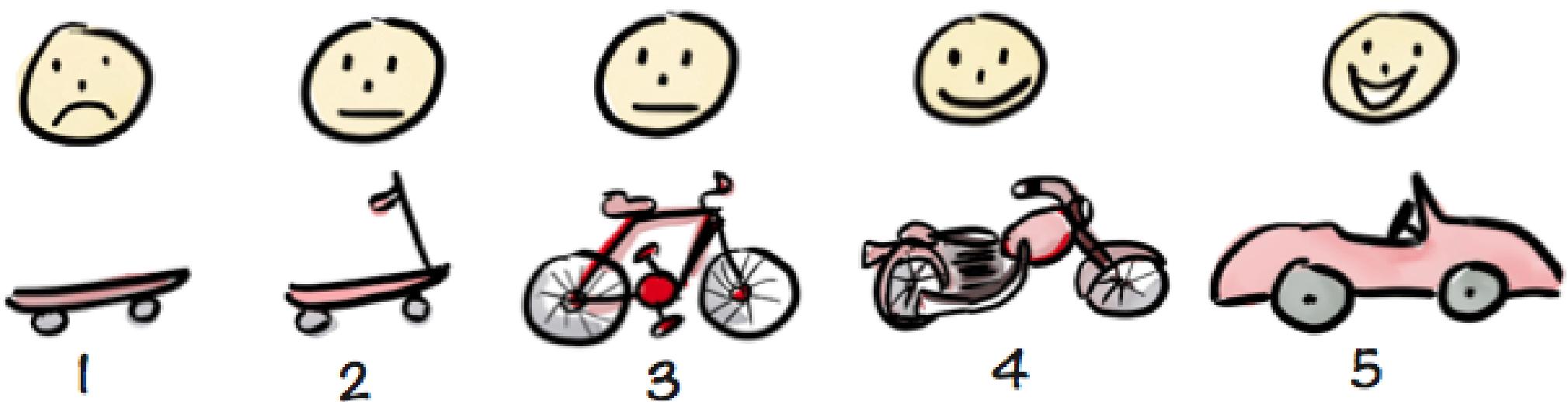
MVP

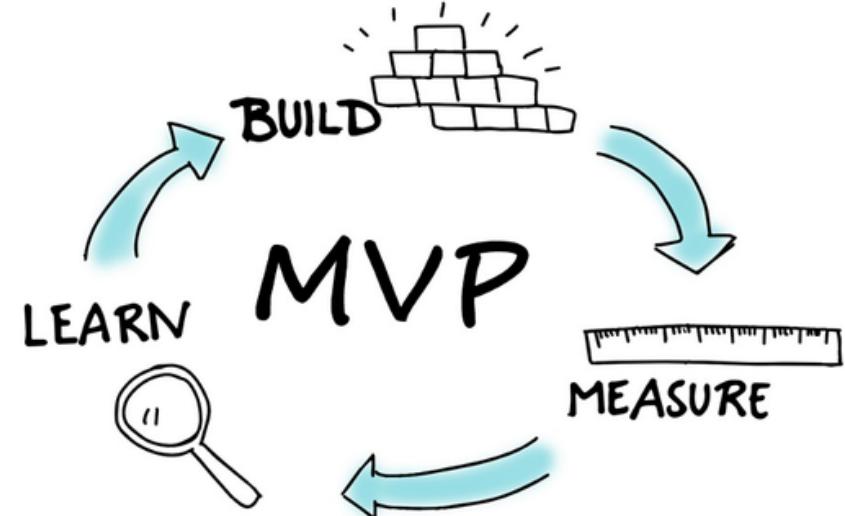


Not like this....



Like this!





Building an MVP quickly

- 01** Time box your spec
- 02** Write your spec
- 03** Cut your spec
- 04** Don't fall in love with your MVP!